

TITLE OF THE INVENTION

VEHICLE-USE BEARING APPARATUS

This is a Continuation of Application No. 10/057,051 filed October 26, 2001.

BACKGROUND OF THE INVENTION

5 The present invention relates to a vehicle-use bearing apparatus of a disk rotor in a disk brake apparatus, a hub unit to which wheels are attached, and the like. Particularly the invention relates to the vehicle-use bearing apparatus having a double row tapered roller bearing with vertex of contact angles outside of bearing.

10 A double row tapered roller bearing with vertex of contact angles outside of the bearing is generally used to receive large radial load, axial load and moment load which are applied from a vehicle body of large weight.

15 In a vehicle-use bearing apparatus having such a bearing, the bearing is externally fitted to an outer periphery of a hub wheel to which wheels are attached, and a shaft portion end of the hub wheel is deformed outwardly in a radial direction so as to be caulked to an outer end surface of one inner ring of the bearing.

20 In order to maintain rolling performance on rolling contact surfaces of inner and outer rings of the tapered roller, as shown in Fig. 7 which is an enlarged diagram of a main section on the caulked side of the bearing, the bearing is designed so that extended lines along rolling contact surfaces 23a and 21a of the inner ring 23 and the outer ring 21 with respect to a rotational axis L of a shaft portion of the hub wheel